NPL-07-2-109

National Priorities List

Superfund hazardous waste site listed under the
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended in 1986

CARRIER AIR CONDITIONING CO.
Collierville, Tennessee

Carrier Air Conditioning Co. of United Technologies manufactures air conditioners on approximately 145 acres in Collierville, Shelby County, Tennessee. Three releases of trichloroethylene (TCE) to the environment have been documented. In 1978, a filter cover failed on a vapor degreaser, spilling 2,000 to 5,000 gallons of TCE. According to Carrier, the local fire department washed this material into Nonconnah Creek. Soil samples collected at the spill site by the State in April 1986 contained TCE.

Starting in about 1972, Carrier operated an unlined, 200-cubic-foot lagoon for storage of TCE-contaminated paint sludges. Presumably it leaked TCE. In November 1980, Carrier removed wastes and soil from the lagoon and sent them to an EPA-regulated hazardous waste facility.

A third release occurred in January 1985. Following a period of heavy rainfall, an unknown volume of TCE leaked from underground pipes. The company recovered 542 gallons of TCE. As a result of this spill, wells were installed at the facility to monitor the Memphis Sands Aquifer. TCE was detected in several of these wells in January 1986.

The Carrier facility is located within 2,000 feet of Water Plant wells #2 of the City of Collierville. Analyses conducted in July 1986 by the Tennessee Department of Health and Environment found that the west well for Water Plant #2 was contaminated with low levels of TCE. Subsequently, Carrier sampled both wells at Water Plant #2, both wells at Water Plant #1 (approximately 15 miles east of Carrier), and the treated water from both plants. Low levels of TCE were found in both wells at Water Plant #2. Carrier continues to monitor public and private wells in the area. An estimated 12,800 people obtain drinking water from wells in the Memphis Sands Aquifer within 3 miles of the site.

This facility obtained Interim Status under Subtitle C of the Resource Conservation and Recovery Act (RCRA) when it filed a Notification of Hazardous Waste Activity and Part A of a permit application to treat, store, or dispose of hazardous waste. Later, it withdrew its Part A and converted to generator-only status with EPA or State approval. Hence, it satisfies a component of EPA's NPL/RCRA policy.

Facility name: Carrier Air Conditioning Co.

Location: Collierville, TN

EPA Region: 4

Person(s) in charge of the facility: John Brewer

97 So. Byhalia

Collierville, TN 38017

Name of Reviewer: Michael J. Higgs Date: September 15, 1986

General description of the facility:

(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

Three incidences of releases of TCE to the environment have been documented as well as contamination of groundwater with TCE. The water supply wells at the City of Collierville's water plant #2 are contaminated, but not the finished water. The Collierville water supply is presently being monitored.

Scores: S_M = 55.57 (S_{gw} = 61.54 S_{sw} = 0 S_a = 0)

S_{FE} = Not Rated

S_{DC} = Not Rated

FIGURE 1
HRS COVER SHEET

QA

S. Steven Chang

6/12/1987

Carrier Air Conditioning Co.
TND 044062222

Ground Water Route Work Sheet

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref (Section)
1 Observed Release	0 (45)	1	45	45	3.1
If observed release is given a score of 45, proceed to line 4. If observed release is given a score of 0, proceed to line 2.					
2 Route Characteristics					3.2
Depth to Aquifer of Concern	0 1 2 3	2		6	
Net Precipitation	0 1 2 3	1		3	
Permeability of the Unsaturated Zone	0 1 2 3	1		3	
Physical State	0 1 2 3	1		3	
Total Route Characteristics Score				15	
3 Containment	0 1 2 3	1		3	3.3
4 Waste Characteristics					3.4
Toxicity/Persistence	0 3 6 9 (12) 15 18	1	12	18	
Hazardous Waste Quantity	0 1 2 3 (4) 5 6 7 8	1	4	8	
Total Waste Characteristics Score			16	26	
5 Targets					3.5
Ground Water Use	0 1 2 (3)	3	9	9	
Distance to Nearest Well/Population Served	0 4 6 8 10 / 12 16 18 20 / 24 30 32 35 (40)	1	40	40	
Total Targets Score			49	49	
6 If line 1 is 45, multiply 1 x 4 x 5 / If line 1 is 0, multiply 2 x 3 x 4 x 5			35280	57.330	
7 Divide line 6 by 57.330 and multiply by 100			$S_{gw} = 61.54$		

FIGURE 2
GROUND WATER ROUTE WORK SHEET

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Surface Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)		Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	(0)	45	1	0	45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.						
2 Route Characteristics						4.2
Facility Slope and Intervening Terrain	0 (1) 2 3		1	1	3	
1-yr. 24-hr. Rainfall	0 1 2 (3)		1	3	3	
Distance to Nearest Surface Water	0 1 2 (3)		2	6	6	
Physical State	0 1 2 (3)		1	3	3	
Total Route Characteristics Score				13	15	
3 Containment	0 1 2 (3)		1	3	3	4.3
4 Waste Characteristics						4.4
Toxicity/Persistence	0 3 6 9 (12) 15 18		1	12	18	
Hazardous Waste Quantity	0 1 (2) 3 (4) 5 6 7 8		1	4	8	
Total Waste Characteristics Score				14	28	
5 Targets						4.5
Surface Water Use	(0) 1 2 3		3	0	9	
Distance to a Sensitive Environment	(0) 1 2 3		2	0	6	
Population Served/Distance to Water Intake Downstream	(0) 4 6 8 10 12 16 18 20 24 30 32 35 40		1	0	40	
Total Targets Score				0	55	
6 If line 1 is 45, multiply 1 x 4 x 5. If line 1 is 0, multiply 2 x 3 x 4 x 5				0	64,350	
7 Divide line 6 by 64,350 and multiply by 100			S_{sw} =	0		

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

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Air Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	(0) 45	1	0	45	5.1
Date and Location:					
Sampling Protocol:					
If line 1 is 0, the S_a = 0. Enter on line 5. If line 1 is 45, then proceed to line 2.					
2 Waste Characteristics					5.2
Reactivity and Incompatibility	0 1 2 3	1		3	
Toxicity	0 1 2 3	3		9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
	Total Waste Characteristics Score			20	
3 Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30	
Distance to Sensitive Environment	0 1 2 3	2		6	
Land Use	0 1 2 3	1		3	
	Total Targets Score			39	
4 Multiply 1 x 2 x 3			0	35,100	
5 Divide line 4 by 35,100 and multiply by 100		S_a = 0			

FIGURE 9
AIR ROUTE WORK SHEET

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	S	S^2
Groundwater Route Score (S_{gw})	61.54	3787.17
Surface Water Route Soore (S_{sw})	0	0
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		3787.17
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		61.54
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		35.57

FIGURE 10
WORKSHEET FOR COMPUTING S_M

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NOT RATED

Fire and Explosion Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Containment	1 3	1		3	7.1
2 Waste Characteristics					7.2
Direct Evidence	0 3	1		3	
Ignitability	0 1 2 3	1		3	
Reactivity	0 1 2 3	1		3	
Incompatibility	0 1 2 3	1		3	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				20	
3 Targets					7.3
Distance to Nearest Population	0 1 2 3 4 5	1		5	
Distance to Nearest Building	0 1 2 3	1		3	
Distance to Sensitive Environment	0 1 2 3	1		3	
Land Use	0 1 2 3	1		3	
Population Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Total Targets Score				24	
4 Multiply 1 x 2 x 3				1,440	
5 Divide line 4 by 1,440 and multiply by 100		S_{FE} =			

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

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Carri Air Conditioning Co.
TND 044062222

NOT RATED

Direct Contact Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Incident	0 45	1		45	8.1
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	0 1 2 3	1		3	8.2
3 Containment	0 15	1		15	8.3
4 Waste Characteristics Toxicity	0 1 2 3	5		15	8.4
5 Targets					8.5
Population Within a 1-Mile Radius	0 1 2 3 4 5	4		20	
Distance to a Critical Habitat	0 1 2 3	4		12	
Total Targets Score				32	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5				21,600	
7 Divide line 6 by 21,600 and multiply by 100		S_{DC} =			

FIGURE 12
DIRECT CONTACT WORK SHEET

Q&A
Steve Chang
6/12/87

Cross Reference of NPL-FR 2-36

Adjusted Final NPL-U 7-2-109 2/90

National Priorities List

Superfund hazardous waste site listed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended in 1986

CARRIER AIR CONDITIONING CO.
Collierville, Tennessee

Conditions at listing (June 1988): Carrier Air Conditioning Co., a United Technologies company, manufactures air conditioners on approximately 145 acres in Collierville, Shelby County, Tennessee. Three releases of trichloroethylene (TCE) to the environment have been documented. In 1978, a filter cover failed on a vapor degreaser, spilling 2,000 to 5,000 gallons of TCE. According to Carrier, the local fire department washed this material into Nonconnah Creek. Soil samples collected at the spill site by the State in April 1986 contained TCE.

Starting in about 1972, Carrier operated an unlined, 200-cubic-foot lagoon for storage of TCE-contaminated paint sludges. Presumably it leaked TCE. In November 1980, Carrier removed wastes and soil from the lagoon and sent them to an EPA-regulated hazardous waste facility.

A third release occurred in January 1985. Following a period of heavy rain, an unknown volume of TCE leaked from underground pipes. The company recovered 542 gallons of TCE. As a result of this spill, wells were installed at the facility to monitor the Memphis Sands Aquifer. TCE was detected in several wells in January 1986.

The Carrier facility is located within 2,000 feet of wells of the City of Collierville. Analyses conducted in July 1986 by the Tennessee Department of Health and Environment found that the west well for Water Plant #2 was contaminated with low levels of TCE. Subsequently, Carrier sampled both wells at Water Plant #2, both wells at Water Plant #1 (approximately 15 miles east of Carrier), and the treated water from both plants. Low levels of TCE were found in both wells at Water Plant #2. Carrier continues to monitor public and private wells in the area. An estimated 12,800 people obtain drinking water from wells in the Memphis Sands Aquifer within 3 miles of the site.

This facility obtained Interim Status under Subtitle C of the Resource Conservation and Recovery Act (RCRA) when it filed a Notification of Hazardous Waste Activity and Part A of a permit application to treat, store, or dispose of hazardous waste. Later, it withdrew its Part A and converted to generator-only status with EPA or State approval. Hence, it satisfies a component of EPA's NPL/RCRA policy.

Status (December 1989): In September 1989, EPA and Carrier, Inc., signed a CERCLA Consent Order under which Carrier will conduct a remedial investigation/feasibility study to determine the type and extent of contamination at the site and identify alternatives for remedial action. Field work is scheduled to begin in January 1990.

Facility name: Carrier Air Conditioning Co.

Location: Collierville, TN

EPA Region: 4

Person(s) in charge of the facility: John Brewer

97 So. Byhalia

Collierville, TN 38017

Name of Reviewer: Michael J. Higgs Date: September 15, 1986

General description of the facility:

(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

Three incidences of releases of TCE to the environment have been documented as well as contamination of groundwater with TCE. The water supply wells at the City of Collierville's water plant #2 are contaminated, but not the finished water. The Collierville water supply is presently being monitored.

Scores: S_M = 48.91 (S_{gw} = 84.62 S_{sw} = 0 S_a = 0)

S_{FE} = Not Rated

S_{DC} = Not Rated

FIGURE 1.
HRS COVER SHEET

QA

S. Steven Chang

6/12/1987

revised in response to comments 1/9/90
John K. Miller

Ground Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 (45)	1	45	45	3.1
If observed release is given a score of 45, proceed to line 4. If observed release is given a score of 0, proceed to line 2.					
2 Route Characteristics					3.2
Depth to Aquifer of Concern	0 1 2 3	2		6	
Net Precipitation	0 1 2 3	1		3	
Permeability of the Unsaturated Zone	0 1 2 3	1		3	
Physical State	0 1 2 3	1		3	
Total Route Characteristics Score				15	
3 Containment	0 1 2 3	1		3	3.3
4 Waste Characteristics					3.4
Toxicity/Persistence	0 3 6 9 12 15 (18)	1	18	18	
Hazardous Waste Quantity	0 1 2 3 (4) 5 6 7 8	1	4	8	
Total Waste Characteristics Score			22	26	
5 Targets					3.5
Ground Water Use	0 1 2 (3)	3	9	9	
Distance to Nearest Well/Population Served	0 4 6 8 10 12 16 18 20 24 30 32 35 (40)	1	40	40	
Total Targets Score			49	49	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			48510	57,330	
7 Divide line 6 by 57,330 and multiply by 100			S_{gw} = 84.62		

FIGURE 2
GROUND WATER ROUTE WORK SHEET

Revised in Response to Comments 1/9/90
John K Miller

Carrier Air Conditioning Co.
TND 044062222

Surface Water Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	(0) 45	1	0	45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.					
2 Route Characteristics					4.2
Facility Slope and Intervening Terrain	0 (1) 2 3	1	1	3	
1-yr. 24-hr. Rainfall	0 1 2 (3)	1	3	3	
Distance to Nearest Surface Water	0 1 2 (3)	2	6	6	
Physical State	0 1 2 (3)	1	3	3	
Total Route Characteristics Score			13	15	
3 Containment	0 1 2 (3)	1	3	3	4.3
4 Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 (12) 15 18	1	12	18	
Hazardous Waste Quantity	0 1 (2) 3 (4) 5 6 7 8	1	4	8	
Total Waste Characteristics Score			14	26	
5 Targets					4.5
Surface Water Use	(0) 1 2 3	3	0	9	
Distance to a Sensitive Environment	(0) 1 2 3	2	0	6	
Population Served/Distance to Water Intake Downstream	(0) 4 6 8 10 12 18 18 20 24 30 32 35 40	1	0	40	
Total Targets Score			0	55	
6 If line 1 is 45, multiply 1 x 4 x 5. If line 1 is 0, multiply 2 x 3 x 4 x 5			0	64,350	
7 Divide line 6 by 64,350 and multiply by 100	S_{sw} = 0				

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

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Steve Chang
6/12/87

Carrier Air Conditioning Co.
TND 044062222

Air Route Work Sheet						
Rating Factor	Assigned Value (Circle One)		Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	(0)	45	1	0	45	5.1
Date and Location:						
Sampling Protocol:						
If line 1 is 0, the S_a = 0. Enter on line 5. If line 1 is 45, then proceed to line 2.						
2 Waste Characteristics						5.2
Reactivity and Incompatibility	0 1 2 3		1		3	
Toxicity	0 1 2 3		3		9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8		1		8	
	Total Waste Characteristics Score				20	
3 Targets						5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30		1		30	
Distance to Sensitive Environment	0 1 2 3		2		6	
Land Use	0 1 2 3		1		3	
	Total Targets Score				39	
4 Multiply 1 x 2 x 3				0	35,100	
5 Divide line 4 by 35,100 and multiply by 100			S_a = 0			

FIGURE 9
AIR ROUTE WORK SHEET

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	S	S^2
Groundwater Route Score (S_{gw})	84.62	7160.54
Surface Water Route Score (S_{sw})	—	—
Air Route Score (S_a)	—	—
$S_{gw}^2 + S_{sw}^2 + S_a^2$		7160.54
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		84.62
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		48.91

FIGURE 10
WORKSHEET FOR COMPUTING S_M

Revised in Response to comments
John K Miller 1/9/90

Carrier Air Conditioning Co.
TND 004062222

NOT RATED

Fire and Explosion Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Containment	1 3	1		3	7.1
2 Waste Characteristics					7.2
Direct Evidence	0 3	1		3	
Ignitability	0 1 2 3	1		3	
Reactivity	0 1 2 3	1		3	
Incompatibility	0 1 2 3	1		3	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				20	
3 Targets					7.3
Distance to Nearest Population	0 1 2 3 4 5	1		5	
Distance to Nearest Building	0 1 2 3	1		3	
Distance to Sensitive Environment	0 1 2 3	1		3	
Land Use	0 1 2 3	1		3	
Population Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Total Targets Score				24	
4 Multiply 1 x 2 x 3				1,440	
5 Divide line 4 by 1,440 and multiply by 100		S_{FE} =			

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

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Carrier Air Conditioning Co.
TND 044062222

NOT RATED

Direct Contact Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Rel. (Section)
1 Observed Incident	0 45	1		45	8.1
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	0 1 2 3	1		3	8.2
3 Containment	0 15	1		15	8.3
4 Waste Characteristics Toxicity	0 1 2 3	5		15	8.4
5 Targets					8.5
Population Within a 1-Mile Radius	0 1 2 3 4 5	4		20	
Distance to a Critical Habitat	0 1 2 3	4		12	
Total Targets Score				32	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5				21,600	
7 Divide line 6 by 21,600 and multiply by 100		S_{DC} =			

FIGURE 12
DIRECT CONTACT WORK SHEET

Q&A
Steve Chang
6/12/87

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

FACILITY NAME: Carrier Air Conditioning

FACILITY DESCRIPTION: Air Conditioner Manufacturer

LOCATION: Collierville, Tennessee

DATE SCORED: September 30, 1986

PERSON SCORING: Michael J. Higgs

PRIMARY SOURCE(S) OF INFORMATION (e.g., EPA region, state, FIT, etc.):

State Files

FACTORS NOT SCORED DUE TO INSUFFICIENT INFORMATION:

Air Route

COMMENTS OR QUALIFICATIONS:

Water samples collected from the City of Collierville wells have shown low ppb levels of TCE in the raw water supply from the two wells near the Carrier facility. Concurrent samples of treated water from these wells, prior to delivery to the distribution system, have shown no TCE. These wells and treated water are presently being monitored.

QA.
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6/12/1987

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

Trichloroethylene (ref. 1,2,3)
1,1,2 trichloroethane (ref. 2 & 3)

Rationale for attributing the contaminants to the facility:

Trichloroethylene was detected in two of six monitoring wells on site on 1/6 & 7/86 (ref. 1), in several monitoring wells and a City of Collierville water supply well on 7/15/86 (ref. 2), 2 of 4 city water supply wells on 8/27/86 (ref 3) and TCE releases to the environment at this site include an unlined lagoon that contained TCE contaminated paint sludge (ref. 4, 5, 16), a spill of TCE in 1978 (ref. 6), and leaking underground pipes discovered in 1985 (ref. 1). Trichloroethylene (trichloroethene) is still present in soil at the 1978 spill site as determined by samples collected on 4/16/86 (ref. 7).

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifer(s) of concern:

Aquifer of concern is Memphis Sands, the source of water for the City of Collierville (ref. 8). The Sands are in the Claiborne Group, the so-called "500 Ft Sand" in Memphis. Collierville is in the Memphis Sands recharge area, where the Memphis Sands outcrop (ref. 9).

Depth(s) from the ground surface to the highest seasonal level of the saturated zone (water table(s)) of the aquifer of concern:

N/A

Depth from the ground surface to the lowest point of waste disposal/storage:

N/A

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

N/A

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Mean annual lake or seasonal evaporation (list months for seasonal):

N/A

Net precipitation (subtract the above figures):

N/A

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

N/A

Permeability associated with soil type:

N/A

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

N/A

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

N/A

Method with highest score:

N/A

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4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Trichloroethylene (ref. 1, 2, 3, & 7)
1,1,2 trichloroethane (ref. 2 & 3)

Compound with highest score:

Trichloroethylene
toxicity = 3 (ref. 10)
persistence = 2 (ref. 11)

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

896 drums

Basis of estimating and/or computing waste quantity:

2,000 - 5,000 gallons spill of TCE in 1978 (ref. 3, 4, & 6) = 40 drums (2000 ÷ 50 gallons/drum).
214 yd^3 capacity of lagoon which contained TCE contaminated paint sludge (214 x 4 drums/yd^3 = 856 drums) (ref. 12) = 896 drums.

5 TARGETS

Ground Water Use

Use(s) and aquifer(s) of concern within a 3-mile radius of the facility:

All of the municipal drinking water supply wells for the City of Collierville are located within three miles of the site (ref. 1, 8, 13,14).

Domestic use at private residences with no other source readily available (ref. 13, 14).

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:

Two City of Collierville drinking water supply wells are contaminated (ref. 2 & 3).

Distance to above well or building:

0. Contamination is at wells (ref. 2 & 3).

Population Served by Ground Water Wells Within a 3-Mile Radius

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revised in RTC 1/9/90 jkmiller

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

City of Collierville has 3217 connections. Assume 3.8 persons/connection = 12,225 for the Collierville Water System. Also there were identified 146 houses within the 3-mile radius that are not served by municipally supplied water and assumed to use groundwater. Assuming 3.8 persons/house is 555 (ref. 13).

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

None identified

Total population served by ground water within a 3-mile radius:

12,225 for City of Collierville wells
555 for private wells
12,780 for wells within a 3-mile radius

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SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

None detected

Rationale for attributing the contaminants to the facility:

N/A

* * *

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

0.5% (ref. 14)

Name/description of nearest downslope surface water:

Nonconnah Creek (ref. 14). This is the extreme upper end of westernly flowing Nonconnah Creek. This creek is channelized within three miles downstream of the site and eventually flow through Memphis to McKellar Lake and the Mississippi River.

Average slope of terrain between facility and above-cited surface water body in percent:

0.8% (ref. 14)

Is the facility located either totally or partially in surface water?

No (ref. 14)

Is the facility completely surrounded by areas of higher elevation?

No (ref. 14)

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1-Year 24-Hour Rainfall in Inches

3.4 inches (ref. 11)

Distance to Nearest Downslope Surface Water

Less than 1000 ft. from the area of the 1978 TCE spill area. (ref. 14)

Physical State of Waste

Liquid (ref. 1, 4, 6)

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

The spill in 1978 and leaking pipes discovered in 1985 constitute leaking containers with no diversion structures. (ref. 1, 6)
Unlined lagoon (ref. 4, 12, 16)

Method with highest score:

Leaking containers with no diversion structures.

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Trichloroethylene (ref. 1, 2, 3, 7)

Compound with highest score:

trichloroethylene =12
References 10, 11

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revised in response to comments
1/9/90
JK Miller

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

See Ground Water Section

Basis of estimating and/or computing waste quantity:

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

None identified (ref. 13)

Is there tidal influence?

No (ref. 14)

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

N/A (ref. 14)

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

None identified (ref. 14)

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

None identified (ref. 15)

Population Served by Surface Water

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Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

None identified (ref. 13)

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

N/A

Total population served:

None identified (ref. 13)

Name/description of nearest of above water bodies:

N/A

Distance to above-cited intakes, measured in stream miles:

N/A

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AIR ROUTE
NOT RATED

1 OBSERVED RELEASE

Contaminants detected:

Date and Location of detection of contaminants:

Methods used to detect the contaminants:

Rationale for attributing the contaminants to the site:

* * *

2 WASTE CHARACTERISTICS

Reactivity and Incompatibility

Most reactive compound:

Most incompatible pair of compounds:

Toxicity

Most toxic compound:

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Hazardous Waste Quantity

Total quantity of hazardous waste:

Basis of estimating and/or computing waste quantity:

* * *

3 TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi 0 to 1 mi 0 to 1/2 mi 0 to 1/4 mi

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

Distance to critical habitat of an endangered species, if 1 mile or less:

Land Use

Distance to commercial/industrial area, if 1 mile or less:

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Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

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FIRE AND EXPLOSION
NOT RATED

1 CONTAINMENT

Hazardous substances present:

Type of containment, if applicable:

* * *

2 WASTE CHARACTERISTICS

Direct Evidence

Type of instrument and measurements:

Ignitability

Compound used:

Reactivity

Most reactive compound:

Incompatibility

Most incompatible pair of compounds:

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* * *

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility:

Basis of estimating and/or computing waste quantity:

* * *

3 TARGETS

Distance to Nearest Population

Distance to Nearest Building

Distance to Sensitive Environment

Distance to wetlands:

Distance to critical habitat:

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

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Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

Population Within 2-Mile Radius

Buildings Within 2-Mile Radius

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DIRECT CONTACT
NOT RATED

1 OBSERVED INCIDENT

Date, location, and pertinent details of incident:

* * *

2 ACCESSIBILITY

Describe type of barrier(s):

* * *

3 CONTAINMENT

Type of containment, if applicable:

* * *

4 WASTE CHARACTERISTICS

Toxicity

Compounds evaluated:

Compound with highest score: ———————

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* * *

5 TARGETS

Population within one-mile radius

Distance to critical habitat (of endangered species)

Disc--Higgs/GrndW2

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CARRIER AIR CONDITIONING COMPANY
TND 044062222

REFERENCES

1. "Progress Report - Carrier Corporation - Collierville, Tennessee Plant," Roy F. Weston, Inc., March 17, 1986.

2. Analytical data from samples collected by the Site Investigations Section of the Division of Superfund on July 15, 1986.

28 Analytical data from samples taken at Carrier Air Conditioning Company on 1/7/86 by Memphis Solid Waste Field Office.

3. Analytical data from samples collected by the Site Investigations Section of the Division of Superfund on August 27, 1986.

4. Letter from John Brewer of Carrier Corporation in Collierville to Michael J. Higgs of the Division of Superfund dated May 6,1986 with attachments.

5. Letter from Gerald E. Bailey of Carrier Corporation in Syracuse, New York to William J. Forrester of the Division of Superfund dated July 3, 1986.

6. CERCLA section 103c Notification of Hazardous Waste Site by Carrier Corporation dated May 25, 1981.

7. Analytical data from samples collected by the Site Investigations Section of the Division of Superfund on April 16, 1986.

8. Memo to the File from William J. Forrester entitled "Telecon with James Mathis", dated September 11, 1986.

9. Graham, David G., "Effects of Urban Development on the Aquifers in the Memphis Area, Tennessee," Water Resources Investigations 82-4042, U.S. Geological Survey, 1982.

9B Potential for leakage among principal aquifers in the Memphis Area, Tennessee.

9C Historic water level changes and pumpage from the principal aquifers of the Memphis Area, Tennessee 1886, 1975, USGS, Water Resources Investigation 76-67.

10. Sax, N. Irving and Richard J. Lewis, Sr., Dangerous Properties of Industrial Materials, 7th edition, Van Nostrand Reinhold, New York, 1989.

11. Uncontroled Hazardous Waste Site Ranking System - A User's Manual, National Oil and Hazardous Substances Contingency Plan Appendix A (40 CFR 300), or (47 FR 31219), July 16, 1982.

12. Letter from Clifton H. Ritter of Preway Industries, Inc. to Michael J. Higgs dated June 16, 1986 with attachments.

revision in response to comments 11/9/90 John Keller

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13. Memo to the Carrier Air Conditioner Company file from Michael J. Higgs entitled "Water Use Survey in the Vicinity of the Carrier Corporation Facility in Collierville", dated June 27, 1986.

14. Collierville, TN Quadrangle, U.S. Geological Survey, 1965, with photo revisions in 1983.

15. Endangered and Threatened Wildlife and Plants, 50 CFR 17.77 and 17.12, Department of the Interior, U.S. Fish and Wildlife Service, July 27, 1983.

16. Memo to the file from William Forrester "Telecon with John Brewer Concerning Carrier Air Conditiioning Plant", dated January 20, 1987.

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6/12/87